

agitation that kept it rarify'd ceases, it easily condenses, and commixt with other indissoluble parts, it sticks and adheres to the next bodies it meets withall; and this is a certain *Salt* that may be extracted out of *Soot*.

Eighthly, that many indissoluble parts being very apt and prompt to be rarify'd, and so, whilst they continue in that heat and agitation, are lighter then the Ambient Air, are thereby thrust and carry'd upwards with great violence, and by that means carry along with them, not onely that *Saline concrete* I mention'd before, but many terrestrial, or indissoluble and irrefractable parts, nay, many parts also which are dissoluble, but are not suffer'd to stay long enough in a sufficient heat to make them prompt and apt for that action. And therefore we find in *Soot*, not onely a part, that being continued longer in a competent heat, will be dissolv'd by the Air, or take fire and burn; but a part also which is fixt, terrestrial, and irrefractable.

Ninthly, that as there are these several parts that will rarifie and fly, or be driven up by the heat, so are there many others, that as they are indissoluble by the *aerial menstruum*, so are they of such sluggish and gross parts, that they are not easily rarify'd by heat, and therefore cannot be rais'd by it; the volatility or fixtness of a body seeming to consist only in this, that the one is of a texture, or has component parts that will be easily rarify'd into the form of Air, and the other, that it has such as will not, without much ado, be brought to such a constitution; and this is that part which remains behind in a white body call'd Ashes, which contains a substance, or *Salt*, which Chymists call *Alkali*: what the particular natures of each of these bodies are, I shall not here examine, intending it in another place, but shall rather add that this *Hypothesis* does so exactly agree with all *Phænomena* of Fire, and so genuinely explicate each particular circumstance that I have hitherto observ'd, that it is more then probable, that this cause which I have assign'd is the true adequate, real, and onely cause of those *Phænomena*; And therefore I shall proceed a little further, to shew the nature and use of the Air.

Tenthly, therefore the dissolving parts of the Air are but few, that is, it seems of the nature of those *saline menstrua*, or spirits, that have very much flegme mixt with the spirits, and therefore a small parcel of it is quickly glutted, and will dissolve no more; and therefore unless some fresh part of this *menstruum* be apply'd to the body to be dissolv'd, the action ceases, and the body leaves to be dissolv'd and to shine, which is the Indication of it, though plac'd or kept in the greatest heat; whereas *Salt-peter* is a *menstruum*, when melted and red-hot, that abounds more with those Dissolvent particles, and therefore as a small quantity of it will dissolve a great sulphureous body, so will the dissolution be very quick and violent.

Therefore in the *Eleventh* place, it is observable, that, as in other solutions, if a copious and quick supply of fresh *menstruum*, though but weak, be poured on, or applied to the dissoluble body, it quickly consumes it: So this *menstruum* of the Air, if by Bellows, or any other such contrivance, it be copiously apply'd to the shining body, is found to dissolve

dissolve it as soon, and as violently as the more strong *menstruum* of melted *Nitre*.

Therefore twelfthly, it seems reasonable to think that there is no such thing as an Element of Fire that should attract or draw up the flame, or towards which the flame should endeavour to ascend out of a desire or appetite of uniting with that as its *Homogeneous* primitive and generating Element; but that that shining transient body which we call *Flame*, is nothing else but a mixture of Air, and volatil sulphureous parts, of dissoluble or combustible bodies, which are acting upon each other whilst they ascend, that is, flame seems to be a mixture of Air, and the combustible volatil parts of any body, which parts the encompassing Air does dissolve or work upon, which action, as it does intend the heat of the *aerial* parts of the dissolvent, so does it thereby further rarifie those parts that are acting, or that are very neer them, whereby they growing much lighter then the heave parts of that *Menstruum* that are more remote, are thereby protruded and driven upward; and this may be easily observ'd also in dissolutions made by any other *menstruum*, especially such as either create heat or bubbles. Now, this action of the *Menstruum*, or Air, on the dissoluble parts, is made with such violence, or is such, that it imparts such a motion or pulse to the *diaphanous* parts of the Air, as I have elsewhere shewn is requisite to produce light.

This *Hypothesis* I have endeavoured to raise from an Infinite of Observations and Experiments, the process of which would be much too long to be here inserted, and will perhaps another time afford matter copious enough for a much larger Discourse, the Air being a Subject which (though all the world has hitherto liv'd and breath'd in, and been unconversant about) has yet been so little truly examin'd or explain'd, that a diligent enquirer will be able to find but very little information from what has been (till of late) written of it: But being once well understood, it will, I doubt not, enable a man to render an intelligible, nay probable, if not the true reason of all the *Phænomena* of Fire, which, as it has been found by Writers and Philosophers of all Ages a matter of no small difficulty, as may be sufficiently understood by their strange *Hypotheses*, and unintelligible Solutions of some few *Phænomena* of it; so will it prove a matter of no small concern and use in humane affairs, as I shall elsewhere endeavour to manifest when I come to shew the use of the Air in respiration, and for the preservation of the life, nay, for the conservation and restoration of the health and natural constitution of mankind as well as all other aerial animals, as also the uses of this principle or propriety of the Air in chymical, mechanical, and other operations. In this place I have onely time to hint an *Hypothesis*, which, if God permit me life and opportunity, I may elsewhere prosecute, improve and publish. In the mean time, before I finish this Discourse, I must not forget to acquaint the Reader, that having had the liberty granted me of making some trials on a piece of *Lignum fossilis* shewn to the Royal Society, by the eminently Ingenious and Learned Physician, Doctor *Ent*, who receiv'd it for a Present from the famous *Ingenioso Cavalliero de Pozzi*, it being one of the fairest and